

WHAT IS CLAIMED IS:

1. A semiconductor device comprising:

5 a first and a second semiconductor chip which are electrically connected to each other;

a bridge arranged between said first and said second semiconductor chip and electrically connecting them;

10 external connecting electrodes provided to surround areas where said first and said second semiconductor chip are located, at least a portion of the rear surface of them serving as an electrode to be externally connected;

first metallic wires which electrically connect said first and said second semiconductor chip to said external connecting electrodes, respectively;

second metallic wires which electrically connect said first and said second semiconductor chip to said bridge; and

15 insulating resin which seals said first and said second semiconductor chip, said external connecting electrodes, and said first and said second metallic wires,

20 wherein said insulating resin exposes the rear surface of each of said bridge and said external connecting electrodes, and said second metallic wires are ball-bonded on said first and said second semiconductor chip and stitch-bonded on said bridge.

25 2. A semiconductor device according to claim 1, wherein the rear surface of each of said insulating resin and said bridge is coated with an insulating film.

3. A semiconductor device according to claim 1, wherein the rear surface of each of said insulating resin, said bridge and said external connecting electrodes is coated with an insulating film so that said external connecting

electrodes are partially exposed.

4. A semiconductor device comprising:

5 a first and a second semiconductor chip which are electrically connected to each other;

a first die pad to which said first semiconductor chip is fixed;  
a second die pad to which said second semiconductor chip is fixed;  
at least one bridge arranged between said first and said second semiconductor chip and electrically connecting them;

10 external connecting electrodes provided to surround areas where said first and said second semiconductor chip are located, at least a portion of the rear surface of them serving as an electrode to be externally connected;

first metallic wires which electrically connect said first and said second semiconductor chip to said external connecting electrodes, respectively;

15 second metallic wires which electrically connect said first semiconductor chip, said bridge and said second semiconductor chip; and

insulating resin which seals said first and said second semiconductor chip, said external connecting electrode, and said first and said second metallic wires,

20 wherein said insulating resin exposes the rear surface of each of said bridge and said external connecting electrodes, and said second metallic wires are ball-bonded on said first and said second semiconductor chip and stitch-bonded on said bridge.

25 5. A semiconductor device according to claim 4, wherein the rear surface of each of said insulating resin, said first and said second die pad and said bridge is coated with an insulating film.

6. A semiconductor device according to claim 4, wherein the rear surface

of each of said insulating resin, said first and said second die pad, said bridge and said external connecting electrode is coated with an insulating film so that said first die pad, said second die pad and/or said external connecting electrodes are partially exposed.

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7. A semiconductor device comprising:

a first and a second semiconductor chip which are superposed on each other;

10 a bridge electrically connecting said first and said second semiconductor chip;

external connecting electrodes provided to surround areas where said first and said second semiconductor chip are located, at least a portion of the rear surface of them serving as an electrode to be externally connected;

15 first metallic wires which electrically connect said first and said second semiconductor chip to said external connecting electrodes, respectively;

second metallic wires which electrically connect said first and said second semiconductor chip to said bridge; and

20 insulating resin which seals said first and said second semiconductor chip, said external connecting electrode, and said first and said second metallic wires,

wherein said insulating resin exposes the rear surface of each of said bridge and said external connecting electrodes, and said second metallic wires are ball-bonded on said first and said second semiconductor chip and stitch-bonded on said bridge.

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8. A semiconductor device according to claim 7, wherein the rear surface of each of said insulating resin and said bridge is coated with an insulating film .

9. A semiconductor device according to claim 7, wherein the rear surface of each of said insulating resin, said bridge and said external connecting electrodes is coated with an insulating film so that said external connecting electrodes are partially exposed.

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10. A semiconductor device comprising:

a first and a second semiconductor chip which are superposed on each other;

a first die pad to which said first semiconductor chip at a lower layer is fixed;

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at least one bridge arranged between said first and said second semiconductor chip and electrically connecting them;

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external connecting electrodes provided to surround areas where said first and said second semiconductor chip are located, at least a portion of the rear surface of them serving as an electrode to be externally connected;

first metallic wires which electrically connect said first and said second semiconductor chip to said external connecting electrodes, respectively;

second metallic wires which electrically connect said first semiconductor chip, said bridge and said second semiconductor chip; and

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insulating resin which seals said first and said second semiconductor chip, said external connecting electrode, and said first and said second metallic wires,

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wherein said insulating resin exposes the rear surface of each of said bridge and said external connecting electrodes, and said second metallic wires are ball-bonded on said first and said second semiconductor chip and stitch-bonded on said bridge.

11. A semiconductor device according to claim 10, wherein the rear surface of each of said insulating resin, said first die pad and said bridge is

coated with an insulating film .

12. A semiconductor device according to claim 4, wherein the rear surface  
5 of each of said insulating resin, said first and said second die pad, said bridge  
and said external connecting electrode is coated with an insulating film so  
that said first die pad, said second die pad and/or said external connecting  
electrodes are partially exposed.

10 13. A method of manufacturing a semiconductor device comprising the  
steps of:

preparing a sheet-like plate having a prescribed thickness, said plate  
having a flat rear surface over an entire region corresponding to a resin sealing  
area and a front surface in which external connecting electrodes and a bridge  
15 are formed as convex shapes in a region encircled by a region in contact with an  
upper mold;

mounting a semiconductor chip on an area where it is to be mounted and  
electrically connecting said semiconductor chip to said external electrodes and  
said bridge, respectively;

20 mounting said plate in a mold and filling a space formed by said plate  
and said upper mold with insulating resin; and

removing the plate exposed to the rear surface of the insulating resin,  
thereby separating said convex portions.

25 14. A method of manufacturing a semiconductor device according to  
claim 13, wherein after said insulating resin has been filled, an insulating film  
is formed on the rear surface of said insulating resin so that said externally  
connecting electrodes are partially exposed.

15. A method of manufacturing a semiconductor device according to claim 13, wherein an entire region of the rear surface of the plate corresponding to said resin sealing area is filled is kept in contact with a lower mold.

5        16. A method of manufacturing a semiconductor device according to claim 13, wherein vacuum sucking means is dispersedly arranged on the area with which said lower mold is kept in contact.

10       17. A method of manufacturing a semiconductor device comprising the steps of:

15       preparing a sheet-like plate having a prescribed thickness, said plate having a flat rear surface over an entire region corresponding to a resin sealing area and a front surface in which external connecting electrodes, die pad and a bridge are formed as convex shapes in a region encircled by a region in contact with an upper mold;

      fixedly stacking semiconductor chips on said die pads and electrically connecting said semiconductor chips to said external electrodes and said bridge, respectively;

20       mounting said plate in a mold and filling a space formed by said plate and said upper mold with insulating resin; and

      removing the plate exposed to the rear surface of the insulating resin, thereby separating said convex portions.

25       18. A method of manufacturing a semiconductor device according to claim 13, wherein after said insulating resin has been filled, an insulating film is formed on the rear surface of said insulating resin. so that said externally connecting electrodes and/or said die pads are partially exposed.

      19. A method of manufacturing a semiconductor device according to

claim 18, wherein parts of said external connecting electrodes and said die pads which are exposed from said insulating film are substantially flush with each other, and parts of said external connecting electrodes and die pads are provided with a brazing material or conductive paste.

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20. A method of manufacturing a semiconductor device according to claim 17, wherein an entire region of the rear surface of the plate corresponding to said resin sealing area where said insulating resin is filled is kept in contact with a lower mold.

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21. A method of manufacturing a semiconductor device according to claim 17, wherein vacuum sucking means is dispersedly arranged on the area with which said lower mold is kept in contact.

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